

IN THE CLAIMS

1. An apparatus for controlling a plurality of speakers, comprising:

5 an amplifier for amplifying a play signal to be played over the speakers; and

at least one sensor disposed proximal to at least one of the speakers for sensing at least one environmental condition and outputting sensed data to a controller, wherein the controller adjusts the play signal to compensate for environmental changes based on the sensed data.

10 2. The apparatus of claim 1, wherein the sensor senses one of temperature and humidity.

3. The apparatus of claim 1, further including a detector disposed in each of the
15 speakers configured for receiving a test signal originating from the controller and for reporting to the controller the test signal received at respective speakers, wherein the controller determines the relative positions of the speakers based on the test signals reported by the speakers.

20 4. The apparatus of claim 3, wherein the controller generates compensation data for adjusting the play signal for respective speakers based on the relative positions of the speakers.

5. The apparatus of claim 4, further including a memory for storing the compensation data.

6. The apparatus of claim 5, wherein the memory further stores sensed data read at the time of determination of the relative positions of the speakers.

7. The apparatus of claim 5, wherein the memory is one of a register, an SRAM, a DRAM, and a flash memory.

8. The apparatus of claim 3, wherein the detector is an ultrasonic detector.

9. The apparatus of claim 3, wherein the detector is a speaker used as a microphone.

10. The apparatus of claim 3, wherein the detector is a microphone.

11. The apparatus of claim 3, wherein the reported signal is amplified by the amplifier prior to receipt by the controller.

12. The apparatus of claim 3, wherein the relative position is determined based on the test signal received at a first one of the speakers and played by the first speaker and the played test signal is received by the other speakers.

13. The apparatus of claim 3, wherein the sensor is disposed in each of the speakers.

14. The apparatus of claim 3, wherein the sensor is disposed in the controller.

15. The apparatus of claim 3, wherein the sensor senses temperature and humidity.

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16. A method of controlling a plurality of speakers, comprising:

outputting from an amplifier an amplified play signal to be played over the speakers;

sensing by a sensor at least one environmental condition at a position proximal to

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at least one of the speakers and outputting sensing data to a controller; and

adjusting the play signal to compensate for environmental changes based on the sensing data.

17. The method of claim 16, wherein the sensor senses one of temperature and humidity.

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18. The method of claim 16, further including determining relative positions of the speakers by:

receiving at each speaker a test signal originating from the controller;

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reporting to the controller the test signal received at respective speakers; and calculating relative positions of the speakers based on the test signals reported by the speakers.

19. The method of claim 18, further including generating compensation data for adjusting the play signal for respective speakers based on the relative positions of the speakers.

5 20. The method of claim 19, further including storing in a memory the compensation data.

21. The method of claim 20, further including storing sensing data read at the time of determination of the relative positions of the speakers.

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22. The method of claim 20, wherein the memory is one of a register, an SRAM, a DRAM, and a flash memory.

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23. The method of claim 18, wherein the step of receiving is performed by an ultrasonic detector.

24. The method of claim 18, wherein the step of receiving is performed by a speaker used as a microphone.

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25. The method of claim 18, wherein the step of receiving is by a microphone

26. The method of claim 18, wherein the step of reporting to the controller the test signal is by wireless transmission.

27. The method of claim 18, wherein the relative position is determined based on the test signal received at a first one of the speakers and played by the first speaker and the played test signal is received by the other speakers.

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28. The method of claim 18, wherein the sensor is disposed in each of the speakers.

29. The method of claim 18, wherein the sensor is disposed in the controller.

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30. The method of claim 18, wherein the sensor senses temperature and humidity.

31. An apparatus for controlling a plurality of speakers, comprising:

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an amplifier for amplifying and outputting a play signal to be played over the speakers; and a controller for originating a test signal for receipt by the plurality of speakers and for receiving return signals from each speaker, the return signals representing signals as received at each respective speaker in response to the test signal from a first speaker, said controller for determining relative positions of the speakers based on the return signals and for generating compensation data based on the relative positions of the speakers, wherein the compensation data is used for adjusting the play signal.

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32. The apparatus of claim 31, further including a detector disposed in each speaker for receiving the test signal.

33. The apparatus of claim 32, wherein the detector is an ultrasonic detector.

34. The apparatus of claim 32, wherein the detector is a speaker used as a microphone.

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35. The apparatus of claim 32, wherein the detector is a microphone

36. The apparatus of claim 31, further including at least one sensor disposed proximal to at least one of the speakers for sensing at least one environmental condition and outputting sensing data to the controller, wherein the controller adjusts the play signal to compensate for environmental changes based on the sensing data.

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37. The apparatus of claim 36, wherein the sensor senses one of temperature and humidity.

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38. The apparatus of claim 31, further including a memory for storing the compensation data.

39. The apparatus of claim 38, wherein the memory is one of a register, an SRAM, a DRAM, and a flash memory.

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40. The apparatus of claim 31, wherein the relative position is determined based on the test signal received at a first one of the speakers and played by the first speaker and the played test signal is received by the other speakers.

5 41. The apparatus of claim 36, wherein the sensor is disposed in each of the speakers.

42. The apparatus of claim 36, wherein the sensor is disposed in the controller.